We claim:

1. A kit for implanting an agent into a tissue wall, comprising

(a) an elongate flexible body having a proximal end and a distal end,

a delivery chamber coupled to the distal end of the body and having a space for carrying the agent, and a port for releasing the therapeutic agent therefrom,

an actuator coupled to the delivery chamber and capable of driving the agent through the port, and.

(b) a pellet adapted to be received within said delivery chamber and being formed from a material capable of promoting localized angiogenesis, and having a reservoir for carrying cells for implantation in said myocardial tissue.

2. An apparatus for delivering at least two therapeutic agents to the myocardium comprising:

a body formed of a biocompatible material containing at least one reservoir permeable to at least one therapeutic agent,

wherein the first therapeutic agent contains at least one agent capable of promoting angiogenesis, and

wherein the second therapeutic agent contains cells adapted for implantation in said myocardial tissue.

3. An apparatus according to claim 2 wherein at least two therapeutic agents are disposed in separate reservoirs, each reservoir formed of a biocompatible material permeable to the therapeutic agent disposed within it.

4. An apparatus according to claim 2 wherein at least two therapeutic agents are disposed within a single reservoir.

5. An apparatus according to claim 2 wherein said biocompatible material comprises a drug releasing compound capable of releasing at least one therapeutic agent.

6. An apparatus according to claim 5 wherein said drug releasing compound is capable of releasing at least one therapeutic agent capable of promoting angiogenesis.

7. An apparatus according to claim 2 wherein said biocompatible material is a bioresorbable material.

8. An apparatus according to claim 2 wherein said body includes at least a first and a second member, each having a respective one of said first and said second therapeutic agents.

9. An apparatus according to claim 2 wherein said reservoir contains molecular ligands, said ligands possessing specific affinity for cell surface markers expressed on circulating myocyte precursor cells, whereby said myocyte precursor cells become affixed within said reservoir.

10. An apparatus for delivering at least one therapeutic agent to the myocardium comprising

a pellet formed from a biocompatible material with a plurality of surfaces contacting the tissues of the myocardium to promote localized angiogenesis, and

a reservoir disposed within said pellet adapted for delivering cells capable of implantation in said myocardial tissue.

11. An apparatus according to claim 10 wherein said cells adapted for implantation include skeletal myoblast-derived cells.

12. An apparatus according to claim 10 wherein said cells adapted for implantation include cardiomyocytes.

13. An apparatus according to claim 10 wherein said cells adapted for implantation include precursors to cardiomyocytes.

14. An apparatus according to claim 10 wherein said cells adapted for implantation include genetically modified fibroblasts.

15. An apparatus according to claim 10 wherein said cells adapted for implantation include precursors to fibroblasts.

16. An apparatus according to claim 10 wherein said cells adapted for implantation include bone marrow stromal cells.

17. An apparatus according to claim 10 wherein said biocompatible material comprises a drug releasing compound capable of releasing at least one therapeutic agent.

18. An apparatus according to claim 10 wherein said drug releasing compound is capable of releasing at least one therapeutic agent capable of promoting angiogenesis.

19. An apparatus according to claim 10 wherein said biocompatible material is a bioresorbable material.

20. An apparatus according to claim 1 wherein the inner reservoir contains a molecular ligand, said ligand possessing specific affinity for at least one cell surface marker expressed on a circulating myocyte precursor cell, and said ligand capable of affixing said myocyte precursor cell within said reservoir

21. A method for improving contractile function of myocardial tissue that has suffered ischemic damage, comprising the steps of

identifying a damaged portion of myocardial tissue,

providing a catheter having a distal end adapted for delivering therapeutic agents into myocardial tissue,

introducing said catheter into an anatomic structure,

guiding said catheter through the anatomic structure to reach a surface of the heart,

disposing said distal end against the surface of the heart, and

sequentially delivering at least two therapeutic agents through the surface of the heart to the damaged myocardial tissue,

wherein the first therapeutic agent contains at least one angiogenic factor, and wherein the second therapeutic agent contains implantable cells adapted for restoration of contractile function.

22. A method for improving contractile function of myocardial tissue that has suffered ischemic damage, comprising the steps of

identifying a damaged portion of myocardial tissue,

accessing said damaged portion of myocardial tissue, and

delivering at least two therapeutic agents to the damaged portion of myocardial tissue,

wherein the first therapeutic agent contains at least one agent capable of promoting angiogenesis,

wherein the second therapeutic agent contains cells adapted for implantation in said myocardial tissue, and

whereby the first therapeutic agent evokes a local angiogenic response in the damaged myocardial tissue and the second therapeutic agent introduces cells adapted for implantation in said myocardial tissue, said cells capable of regenerating contractile muscle tissue to achieve improved contractile function.

23. A method according to claim 22, wherein identifying a damaged portion of tissue includes identifying an infarcted portion of myocardial tissue.

24. A method according to claim 22, wherein delivering a therapeutic agent includes delivering a therapeutic agent being capable of mitigating tissue-level preconditions for reperfusion injury.

25. A method according to claim 22, including the steps of

releasing at least one angiogenic factor from the first therapeutic agent, and

releasing the cells adapted for implantation from the second therapeutic agent after the release of the angiogenic factor.

26. A method according to claim 22, wherein at least one therapeutic agent includes a time release delivery vehicle.

27. A method according to claim 22, wherein said cells adapted for implantation in the myocardial tissue include skeletal myoblast-derived cells.

28. A method according to claim 22, wherein said cells adapted for implantation in the myocardial tissue include cardiomyocytes.

29. A method according to claim 22, wherein said cells adapted for implantation in the myocardial tissue include precursors to cardiomyocytes.

30. A method according to claim 22, wherein said cells adapted for implantation in the myocardial tissue include genetically modified fibroblasts.

31. A method according to claim 22, wherein said cells adapted for implantation in the myocardial tissue include bone marrow stromal cells.